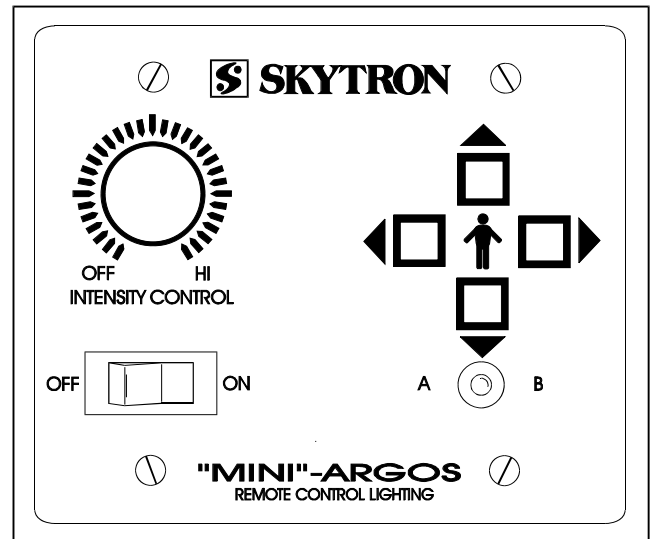
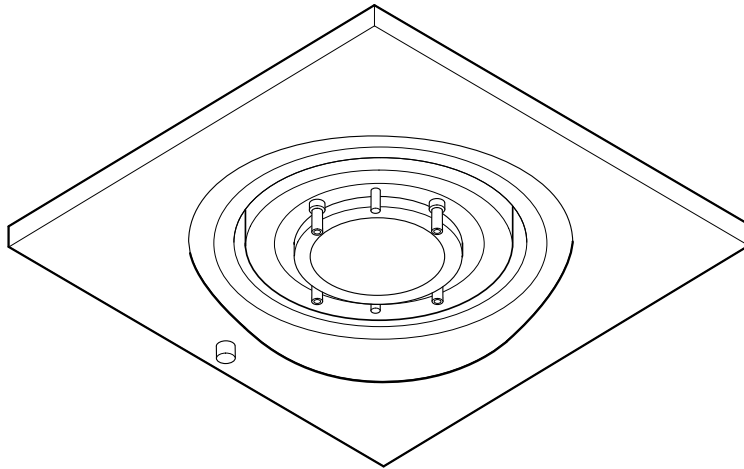


OPERATORS, MAINTENANCE AND PARTS



HA30AR-WC & HA60AR-WC MINI-ARGOS REMOTE CONTROLLED SURGICAL LIGHT

TABLE OF CONTENTS

Title	Page
EQUIPMENT LABELS AND SPECIFICATIONS	2
SPECIAL USER ATTENTION	3
INTRODUCTION	4
SECTION I - OPERATION	5
Wall Intensity/Positioning Control	5
Positioning Wand	5
Positioning Wand Operation	5
SECTION II - MAINTENANCE	6
Positioning Wand Batteries	6
Positioning Wand Strobe Bulb	6
Halogen Bulb Replacement	6
Bulb Voltage Adjustment	7
Cleaning	7
Testing	8
Service	8
Wiring Diagrams	9
SECTION III - REPLACEMENT PARTS	10
3-1 Light Fixture and Control Box Assembly	10
3-2 HA30AR-WC Positioning Wand	12
3-3 HA60AR-WC Positioning Wand	14
3-4 HA60AR-WC Charging Unit	16
3-5 Wall Positioning Control	18
Fixture Wiring	20

Although current at the time of publication, SKYTRON'S policy of continuous development makes this manual subject to change without notice.

EQUIPMENT LABELS AND SPECIFICATIONS



ATTENTION, CONSULT MANUAL FOR FURTHER INSTRUCTIONS.
INDICATES SPECIAL USER ATTENTION.



INDICATES DANGEROUS VOLTAGE, 120 V, 60 Hz



AC VOLTAGE, CONTINUOUS OPERATION

1A

F1 FUSE TYPE 1 AMP, SLOW BLOW TYPE

.25

F2 FUSE TYPE 1/4 AMP, SLOW BLOW TYPE

V

VOLTAGE RATING OF THE UNIT

A

AMPERAGE RATING OF THE UNIT

HZ

FREQUENCY OF THE UNIT



FOR DRY LOCATIONS
UNIT TO BE USED ONLY IN SPECIFIED ENVIRONMENTAL CONDITIONS
TEMPERATURE: 15 - 30 C (60 -85 F)
HUMIDITY: 30% - 60% RELATIVE HUMIDITY, NON CONDENSING

ELECTRICAL SPECIFICATIONS

POWER REQUIREMENTS -- 120VAC, 60HZ 100W, SINGLE PHASE
CURRENT LEAKAGE -- LESS THAN 100 MICRO AMPS
INPUT VOLTAGE TO FIXTURE NOT TO EXCEED 3% NOMINAL VOLTAGE

ENTECLA CERTIFIED

TO UL2601-1

CAN/CSA601.1, IEC 60601-2-46

US



C

entela
Certified

ELECTRIC RATING				
REFER TO ACCOMPANYING DOCUMENTS				
CAT. NO. HA60AR-WC				
INPUT	120V ~	1.25A	100W	60Hz
BULB TYPE	H24100	24V	100W	
FUSE	1A	SLOW BLOW		
SERIAL NO.				
GRAND RAPIDS, MI 1-800-SKYTRON • (616) 957-0500 DAICHI SHOMEI CO., LTD. MADE IN JAPAN				

SERIAL NUMBER LABEL

SPECIAL USER ATTENTION

To help assure the highest degree of operating safety for user and patient, SKYTRON has provided precautionary instructions throughout this manual.

As with the operation of any surgical light, all hospital personnel should be aware that a certain amount of care must be exercised to maintain patient safety and to keep your SKYTRON light fixture performing at peak efficiency.

The following is a summary of the important precautionary instructions:

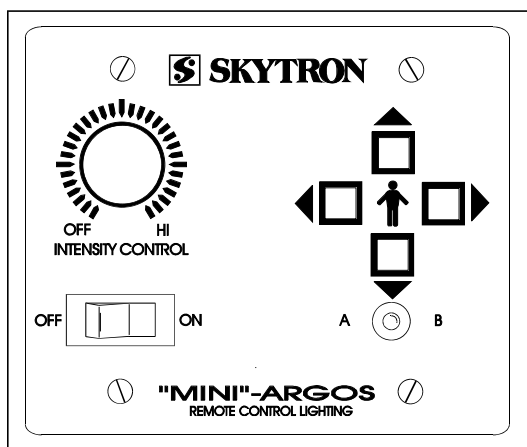
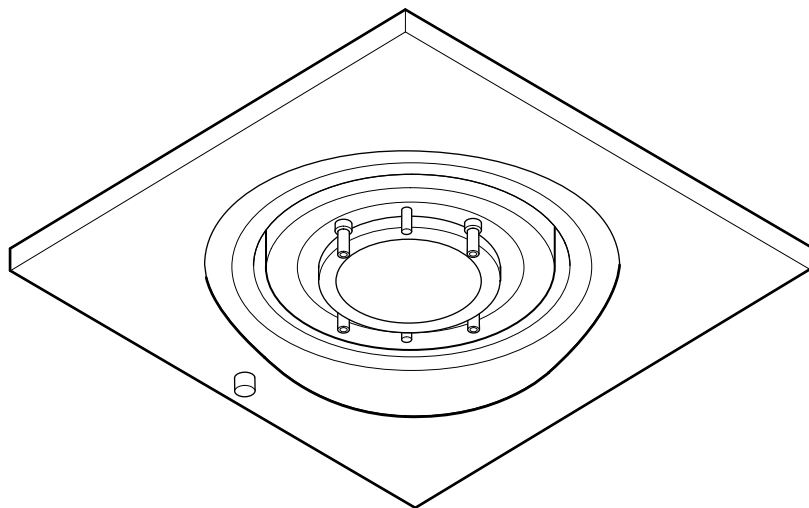
- Make sure the electrical power to the fixture is "OFF" and the bulb is cool. Using caution not to touch the reflector surface, hold the bulb by the base and pull out.
- To prolong bulb life, the Sof-Start bulb protection circuit will cause a slight delay before the bulb will illuminate.
- Halogen bulbs are sensitive to body oils. DO NOT handle glass surface of bulb as body oil from fingers can create a "hot spot" and may cause the bulb to burn out prematurely.
- Voltage adjuster is located on the back of the intensity control. Wall control must be removed from switch box to make the adjustment by an authorized service person.
- Equipment not suitable for use in the presence of flammable anaesthetic mixture with air or with nitrous oxide.
- Where applicable - remove batteries if equipment is not going to be used for some time.
- Warning - risk of fire, replace with 24V 100W Tungsten Halogen Lamp.
- Warning - for continued protection against risk of fire, replace only with same type and rating of fuse.
- Caution - before operation remove top cover, discard packing material and verify that all circuit boards are in place.
- Notice - Thermally protected fixture. Blinking light may indicate insulation too close to fixture or fixture installed where spacings are less than those specified.
- It is recommended to keep the equipment away from disturbance sources including electromagnetic fields in order to avoid malfunctioning of the equipment.
- A dedicated circuit & circuit breaker is required for fixture.

INTRODUCTION

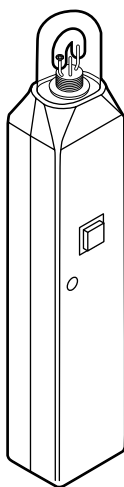
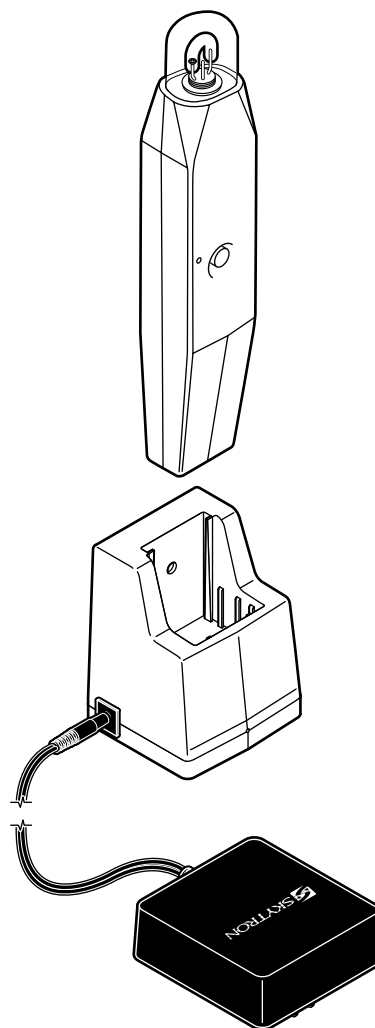
The Mini-Argos Surgical Lighting System from SKYTRON consists of a lighthead with optical sensors and computer circuitry for lighthead positioning. The lighthead is positioned by means of a hand-held, wireless remote control unit (positioning wand). When activated, the positioning wand emits a bright high frequency strobe light. Photoelectric elements located in the lighthead sense the signal emitted by the wand and create input signals to the

internal computer circuitry. The computer circuitry simultaneously activates the two positioning motors until the light beam is focused directly on the positioning wand.

The ON-OFF switch and light intensity controls are located on the wall control. The wall control also offers positioning back-up.



WALL CONTROL

POSITIONING WAND
HA30AR-WCPOSITIONING WAND AND
CHARGING UNIT
HA60AR-WC

WALL INTENSITY/POSITIONING CONTROL

The wall mounted control "ON-OFF" switch supplies direct power to the Mini-Argos positioning circuit. The intensity control knob regulates input to the bulb circuit. See Figure 1-1. Turn power "ON" with the main power switch. Adjust the light intensity with the intensity control knob.

NOTE

To prolong bulb life, the Sof-Start bulb protection circuit will cause a slight delay before the bulb will illuminate.

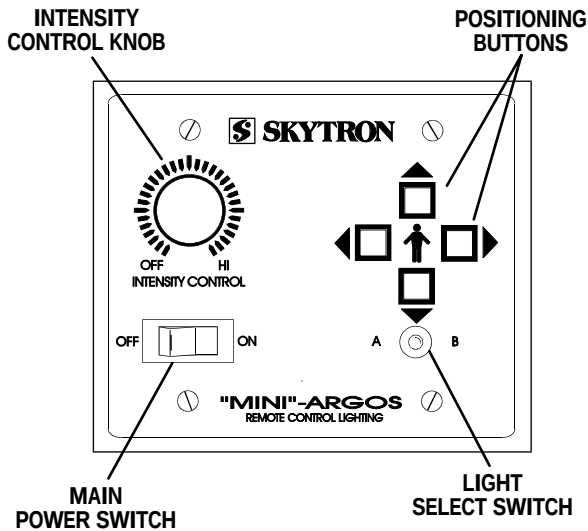


Figure 1-1. Wall Control

When light is no longer needed, lower the intensity control and turn power "OFF" with main power switch.

POSITIONING WAND

The positioning wand is the hand-held remote control device that activates the lighthead positioning function. See Figure 1-2.

Before use in a surgical area, cover the wand with a sterile drape.

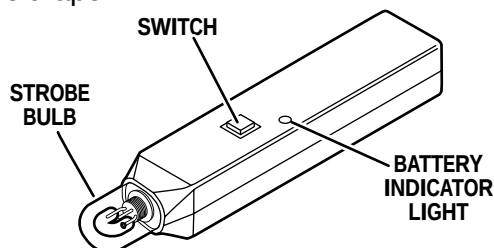


Figure 1-2. Positioning Wand

POSITIONING WAND OPERATION

To initially position the lighthead, turn the main power switch "ON" and hold the strobe end of the positioning wand in the light beam path. Press the momentary switch button on the side of the wand. When the lighthead begins to move, hold the switch button down, move the wand to the desired position and release the switch. With the positioning wand in its sterile drape, the light can be repositioned precisely as desired during surgery. Hold the strobe end of the control wand in the light path, press the switch button, move the wand to the new position and release the switch.

A Battery Indicator Light, located on the wand, will go "ON" when button is pushed. When the button is pushed and the red light gets dimmer or goes out, the batteries need to be changed.

HA30AR-WC POSITIONING WAND

The positioning wand is powered by two C-size alkaline batteries. Erratic movement of the lighthead or failure of the lighthead to follow the wand correctly are symptoms of low battery voltage. To replace the batteries, use the following procedure:

1. Slide the battery cover toward the end of the main case and remove it. See Figure 2-1.
2. Remove old batteries.
3. Install two new C-size alkaline batteries. Battery positioning (polarity) is engraved in control wand case.

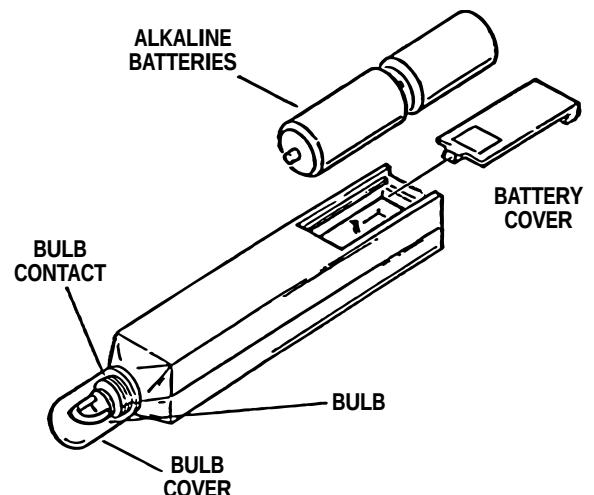


Figure 2-1. HA30AR-WC Positioning Wand

SECTION II - MAINTENANCE

4. Inspect the battery contact on the end cover for corrosion, looseness, or bent contact.

5. Line up sides of the battery cover with slots in main case and replace end cover.

HA60AR-WC POSITIONING WAND

The HA60AR-WC positioning wand is powered by rechargeable batteries. Erratic movement of the lighthead or failure of the lighthead to follow the wand correctly are symptoms of low battery charge. The probe also has a low battery voltage indicator light that will illuminate or blink when the batteries need to be charged.

To recharge the batteries, insert the wand into the recharging base as shown in Figure 2-2. A complete charge will take approximately 4-5 hours.

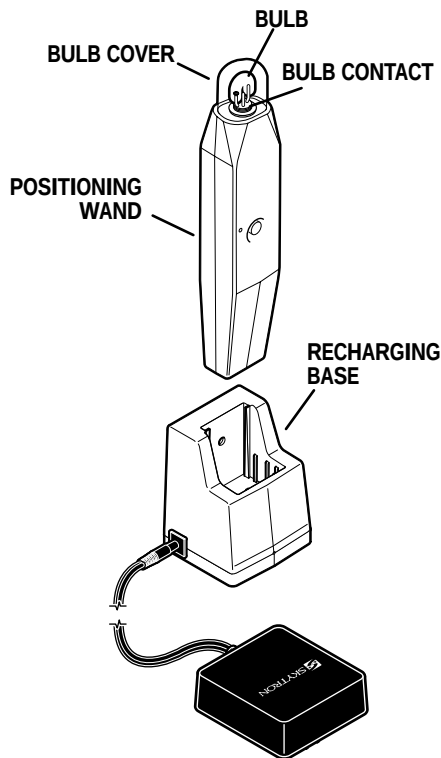


Figure 2-2 HA60AR-WC Positioning Wand

POSITIONING WAND STROBE BULB

To replace the strobe bulb refer to figure 2-1 or 2-2 and use the following procedure:

1. Unscrew and remove the bulb cover.
2. Hold the bulb by the base and pull straight out.

3. Align the three prongs on the new bulb with their corresponding contact holes in the wand (pins are arranged so bulb will fit properly in only one position) and push new bulb into place.

4. Replace bulb cover.

HALOGEN BULB REPLACEMENT

To replace the halogen bulb, use the following procedure:

1. Loosen the thumbscrew securing the diffuser cover and lower the cover. See Figure 2-3.

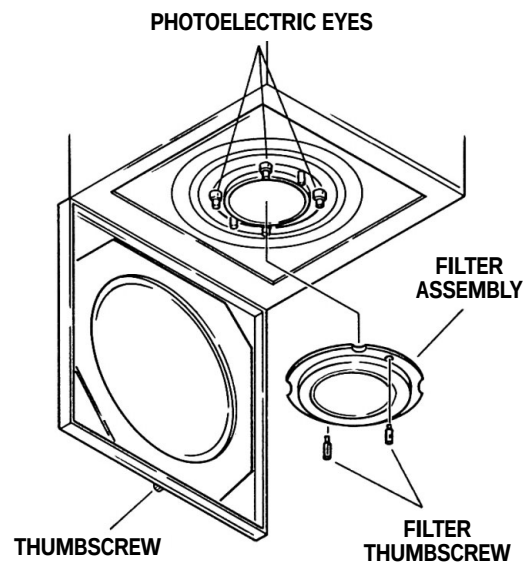


Figure 2-3.

2. Using caution not to move the photoelectric eyes, remove the two thumbscrews securing the filter assembly and remove the filter assembly.

3. Make sure the electrical power to the fixture is "OFF" and the bulb is cool. Using caution not to touch the reflector surface, hold the bulb by the base and pull out. See Figure 2-4. Slightly working the bulb back and forth may aid in removal.

NOTE

The Halogen bulbs are sensitive to body oils. DO NOT handle glass surface of new bulb as body oil from fingers can create a "hot spot" and may cause the bulb to burn out prematurely.

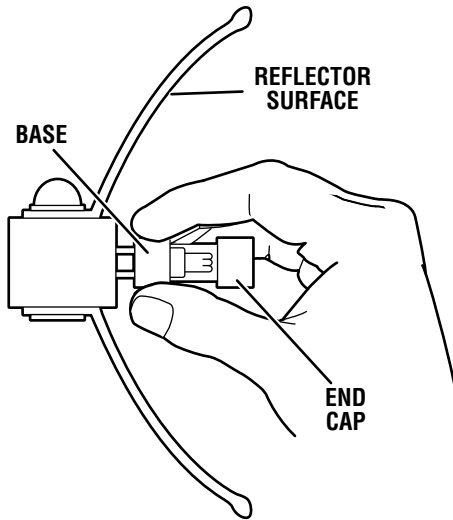


Figure 2-4.

4. Holding the bulb by the base, plug it directly into the socket. DO NOT touch the glass portion of the bulb or the reflector surface with your fingers. This can best be done by using a clean cloth around the base of the bulb when installing. Be sure bulb base is properly seated in the connector to insure proper focus alignment.

BULB VOLTAGE ADJUSTMENT

To insure maximum intensity and to prolong bulb life, the voltage to the bulb should be 20VAC. Use the following procedure to test and adjust the bulb applied voltage.

1. Bulb voltage must be tested with the bulb illuminated. Due to limited space at the base of the bulb for meter test leads, 2 small wires attached to the bulb prongs will simplify the test.

2. Remove the diffuser and remove the bulb. Attach 2 small wires to the prongs of the bulb and reinstall the bulb. Connect the 2 wires to the meter test leads.

3. Turn main power "ON" and set the Dimmer Control to maximum intensity for the test. Output voltage (at the bulb) should be 20V. See figure 2-5.

NOTE

Voltage adjuster is located on the back of the intensity control. Wall control must be removed from switch box to make the adjustment.

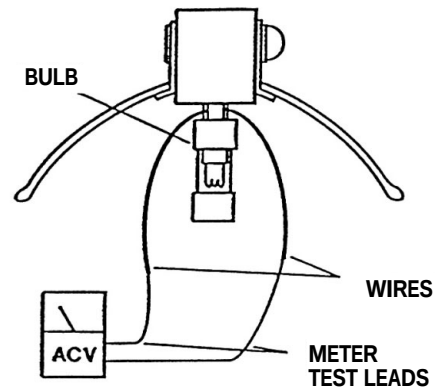


Figure 2-5.

4. Adjust the voltage to the bulb by turning the adjuster on the back side of the intensity control. See figure 2-6.

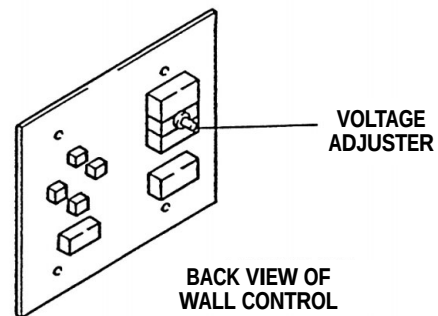


Figure 2-6.

5. Turn the adjuster clockwise to increase the output voltage, counterclockwise to decrease the voltage. Proper voltage should be 20V.

CLEANING

Lighthouse exterior - Should be wiped down periodically or between cases with a mild cleaning agent which will not adversely affect the painted or plastic surfaces.

Lighthouse interior - Should be cleaned once a year or as applicable.

Filter - Should be removed periodically to remove dust and lint. Dust off with a dry cloth or wash and air dry as desired.

The diffuser should be cleaned using a "plexiglass" cleaner such as "210 Plus Cleaner and Scratch Remover" available from Summer Labs (1-800-542-8656, Fax 617-482-9001) or equivalent. DO NOT use alcohol based cleaners on the diffuser.

During scheduled cleaning of the lighthouse interior, all moving parts should be lubricated.

TESTING

If the light fixture does not function properly, test the lighthouse wiring at the wire connections in the lighthouse junction box for proper voltages.

LIGHTHEAD JUNCTION BOX		
WIRE COLORS		VOLTAGE
	HIGH VOLTAGE	
Red & White	=	120 VAC
	LOW VOLTAGE	
Yellow & Brown	=	+15 VDC
Yellow & Black	=	-15 VDC
Yellow & Orange	=	+15 VDC with Foot Button Actuated
	=	-15 VDC with Head Button Actuated
Yellow & Blue	=	+15 VDC with Left Button Actuated
	=	-15 VDC with Right Button Actuated



Lighthouse Housing Connector

PIN #	WIRE COLOR
1	Green
2	White
3	Red
4	Brown
5	Yellow (mobility circuit common)
6	Black
7	Not Used
8	Not Used
9	Orange
10	Blue

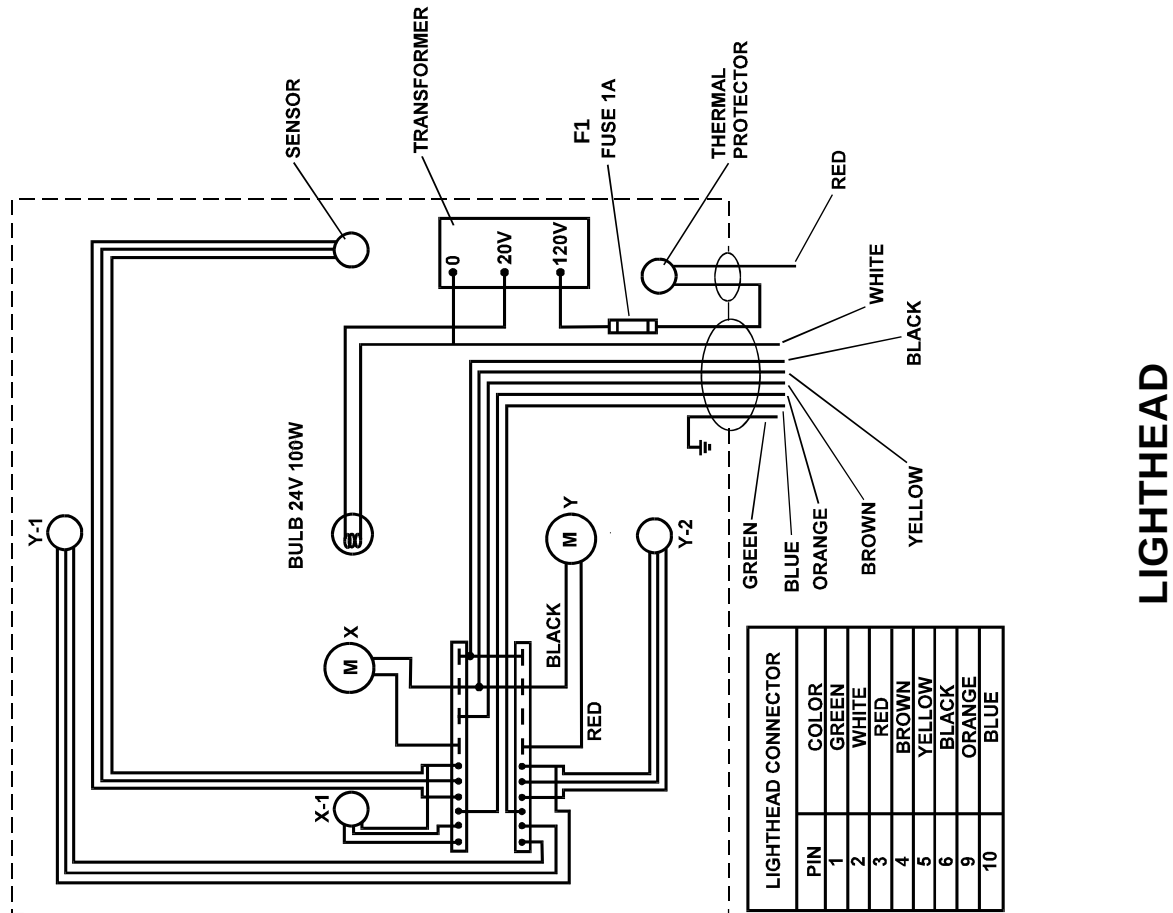
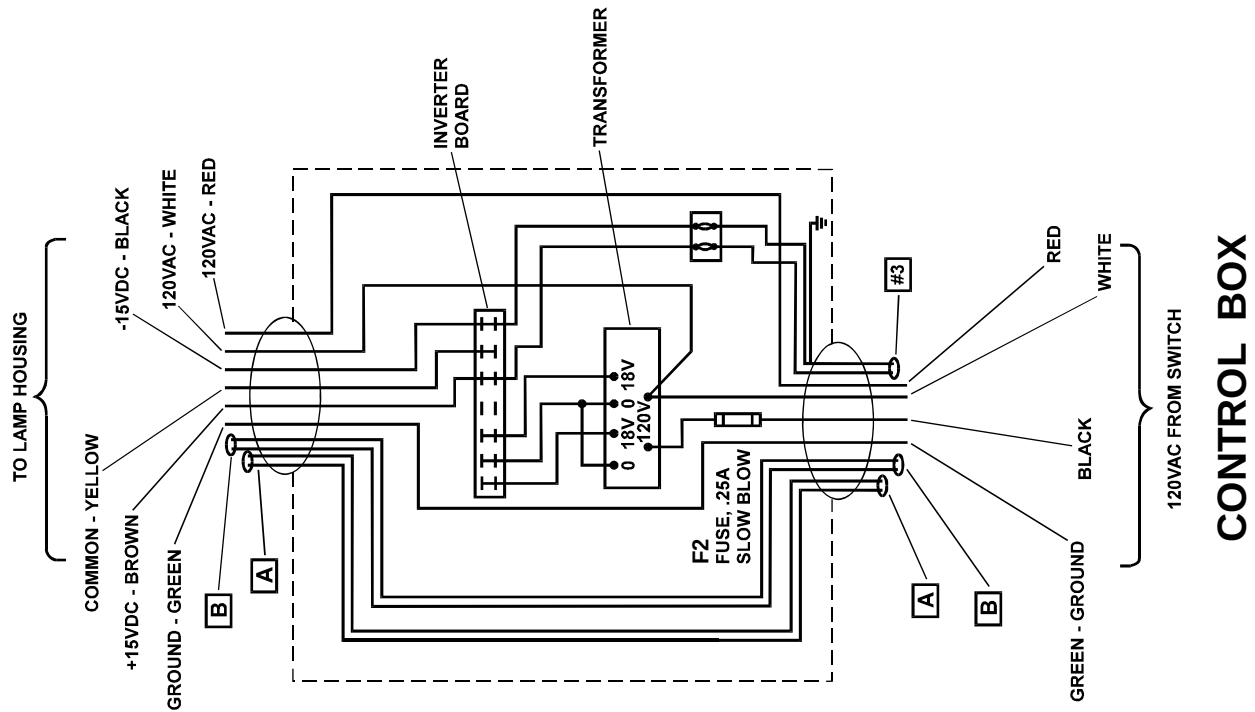
SERVICE

The Mini-Argos Lighthouse has many sensitive components that should not be worked on or adjusted by untrained maintenance personnel. Preventive maintenance performed by SKYTRON factory trained service representatives, using authorized parts and service techniques, will assure the extended and reliable performance of your Mini-Argos Surgical Lights.

For factory service or preventive maintenance contracts on SKYTRON Mini-Argos lighting systems, contact your SKYTRON representative:

Or contact:

SKYTRON
5085 Corporate Exchange Blvd. S.E.
Grand Rapids, MI 49512
1-800-SKYTRON (1-800-759-8766)
Fax. 1-616-656-2906

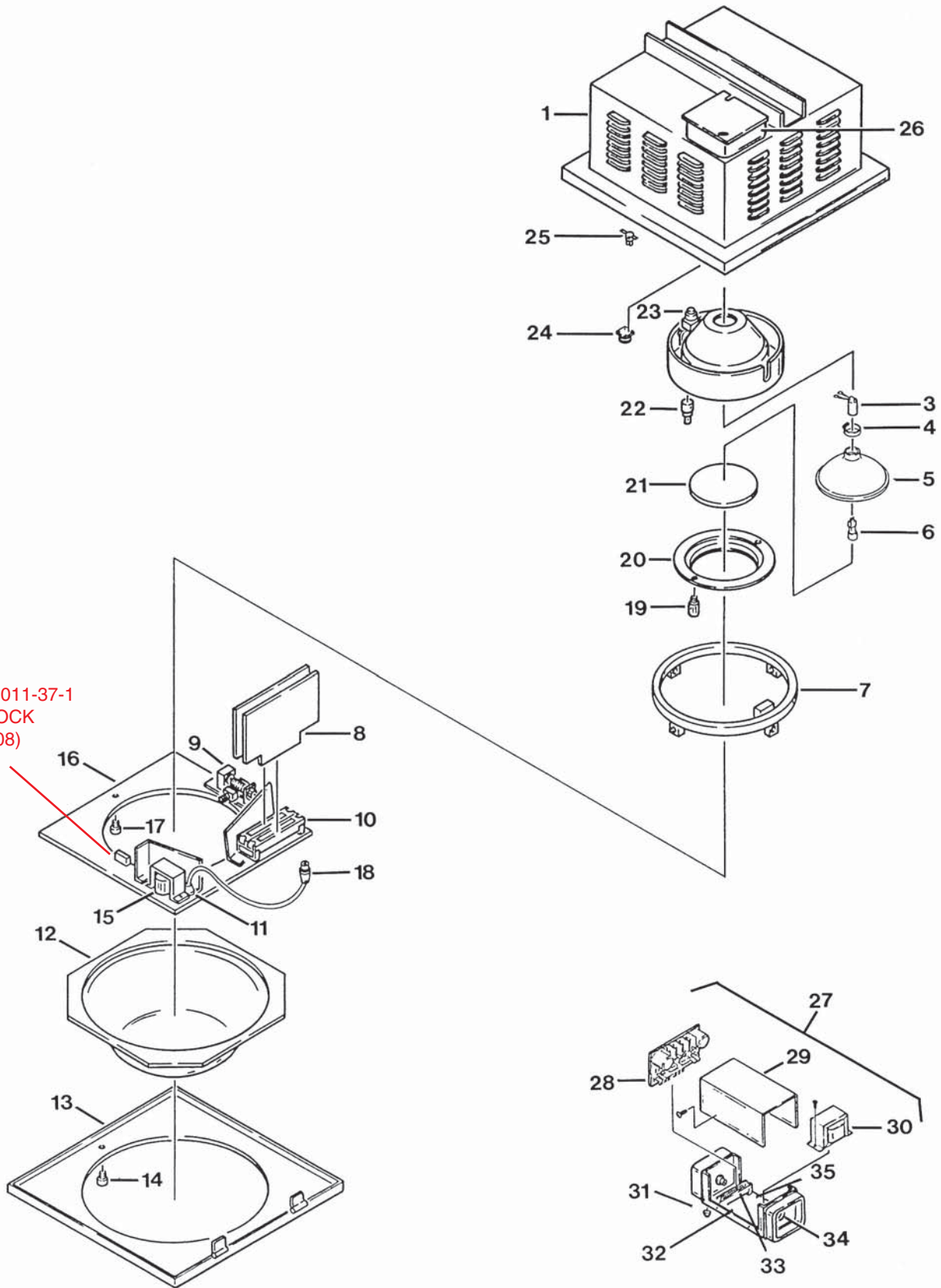


REFER TO PAGES 20,21,22 FOR FIXTURE WIRING CONNECTIONS

SECTION III - REPLACEMENT PARTS

3-1. LIGHT FIXTURE AND CONTROL BOX ASSEMBLY

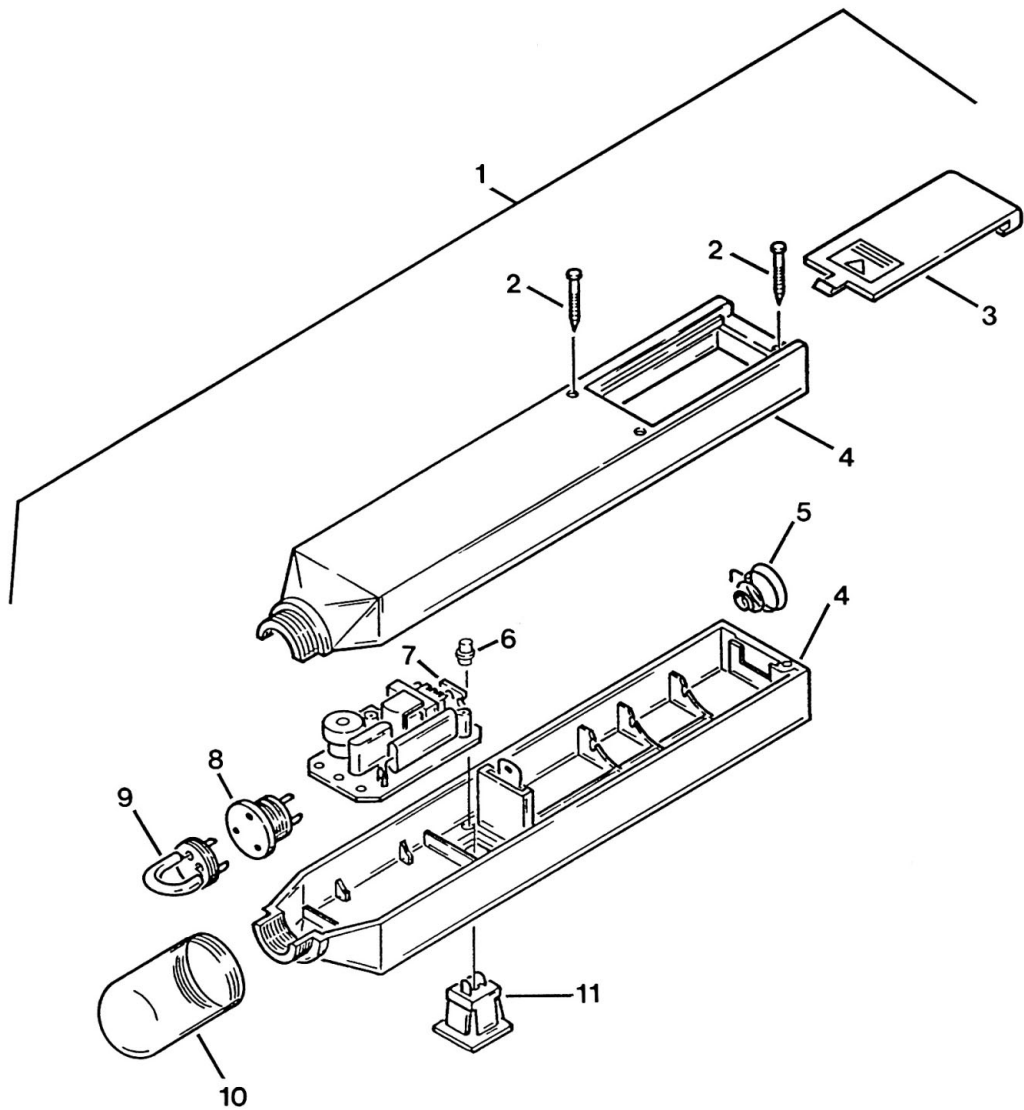
B5-011-37-1
BLOCK
(2-08)



3-1. LIGHT FIXTURE AND CONTROL BOX ASSEMBLY

Item	Part No.	Description	Qty.
1	B5-011-30-C	ENCLOSURE, white	1
2	B5-011-31-1	HOLDER, bulb and reflector	1
3	B1-010-61	SOCKET, Halogen bulb	1
4	B1-010-62	CLAMP, Halogen bulb	1
5	B1-010-59	REFLECTOR, Halogen bulb	1
6	B5-011-32	HALOGEN BULB, 24V, 100W	1
7	B5-011-33	GIMBAL RING	1
8	B5-011-92	CIRCUIT BOARD, motor (-WC)	1
9	B5-011-64	MOTOR AND GEAR ASSEMBLY, (X-axis)	1
	B5-011-56-1	•POSITIONING MOTOR AND U-JOINT	1
10	B5-010-24	RECEPTACLE, female, circuit board	2
11	B1-010-01	FUSEHOLDER	1
	B5-011-82	•FUSE, 1A, slow blow (F1)	A/R
12	B5-011-46	DIFFUSER	1
13	B5-011-37-C	FRONT COVER, enclosure, white	1
14	B5-011-38	THUMBSCREW	1
15	B5-011-41	TRANSFORMER	1
16	B5-011-40-C	MOUNTING PLATE, white	1
17	B5-011-39	SCREW	3
18	B5-011-87	CONNECTOR, 10 pin, female (-WC)	A/R
19	B5-011-42	THUMBSCREW	2
20	B5-011-43	MOUNT, filter	1
21	B5-011-44	FILTER, (HA30AR-WC)	1
	B5-012-02	FILTER, high intensity, (HA60AR-WC)	1
	B5-012-03	RING, rubber filter mount (HA60AR-WC)	1
22	B5-010-28-1	ELECTRIC EYE ASSEMBLY	4
23	B5-011-67	MOTOR AND GEAR ASSEMBLY, (Y-axis)	1
	B5-011-56-1	•POSITIONING MOTOR AND U-JOINT S.N. DO791EZ946&L	1
24	B5-011-86	CONNECTOR, 10 pin, male (-WC)	A/R
25	B5-011-59	THERMAL PROTECTION DEVICE	1
26	B5-011-58	JUNCTION BOX	1
27	B5-011-85	CONTROL BOX ASSEMBLY, motor power (-WC)	1
28	B5-011-49	•CIRCUIT BOARD, power	1
29	B5-011-50	•ENCLOSURE COVER	1
30	B5-010-33-1	•TRANSFORMER, 18V, mobility	1
31	B5-011-53	•FOOT, rubber	4
32	B5-011-54	•ENCLOSURE BASE	1
33	B5-010-24	•RECEPTACLE, female, circuit board	1
34	B1-010-01	•FUSEHOLDER	1
	A9-010-31	•FUSE, 0.5A	A/R
	B5-011-69	•FUSE, 0.25A, slow blow (F2)	A/R
35	B5-011-89	•RESISTOR (-WC)	2

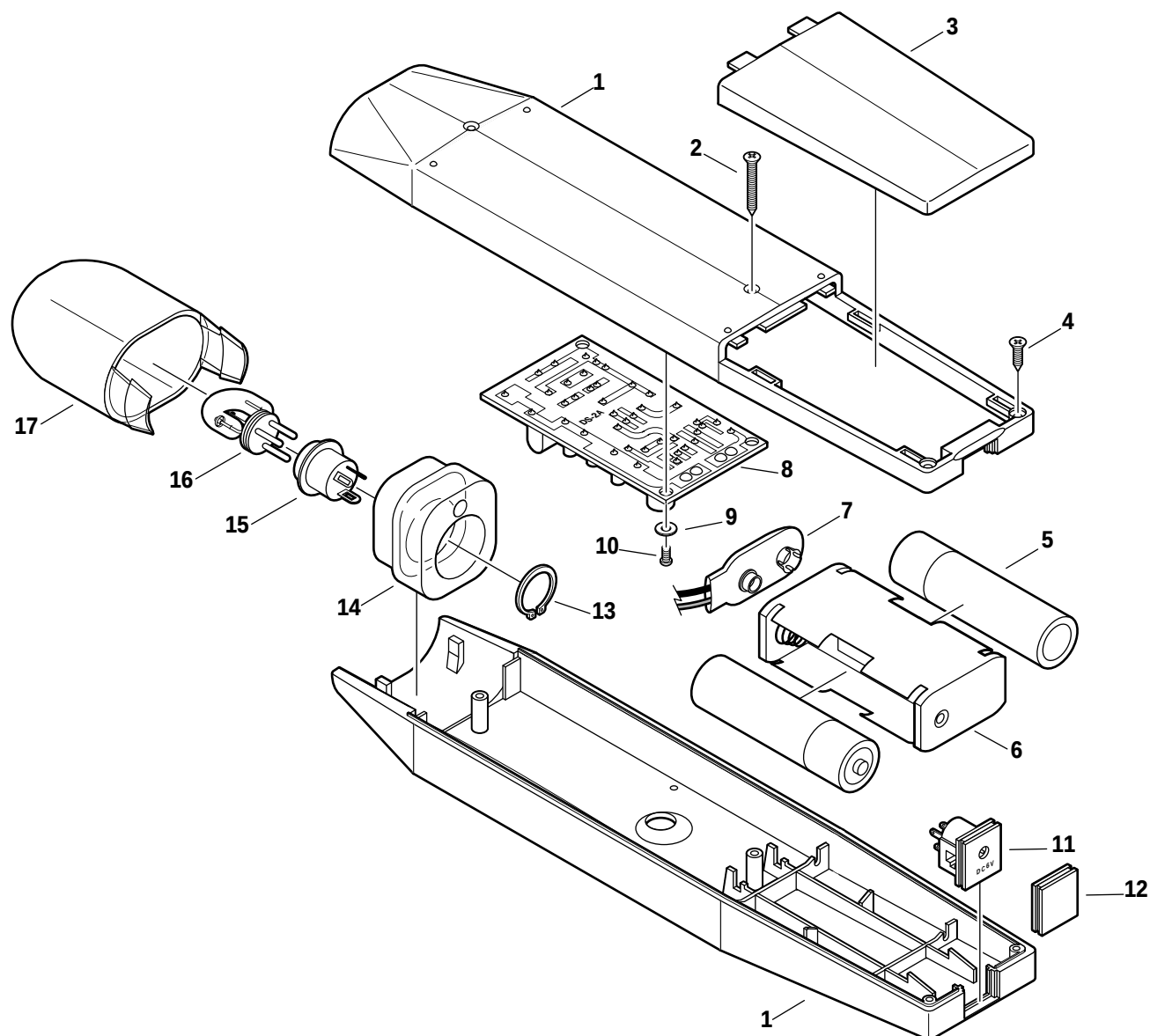
3-2. HA30AR-WC POSITIONING WAND



3-2. HA30AR-WC POSITIONING WAND

Item	Part No.	Description	Qty.
1	B5-010-01-1	WAND ASSEMBLY	1
2	B5-010-22-2	•SCREW, main case retaining	3
3	B5-010-22	•COVER, battery	1
4	B5-010-21	•MAIN CASE (SET)	1
5	B5-010-22-1	•SPRING, battery retaining	1
6	B5-011-83	•LED, battery indicator	1
7	B5-010-10	•WAND CIRCUIT BOARD	1
8	B5-010-09	•CONNECTOR, bulb	1
9	B5-010-04	•STROBE BULB	1
10	B5-010-03	•PLASTIC COVER	1
11	B5-010-06-5	•SWITCH, push button	1
NS	B5-010-02	DRAPE, finished	A/R
NS	B5-010-05	DRAPE, unfinished	A/R

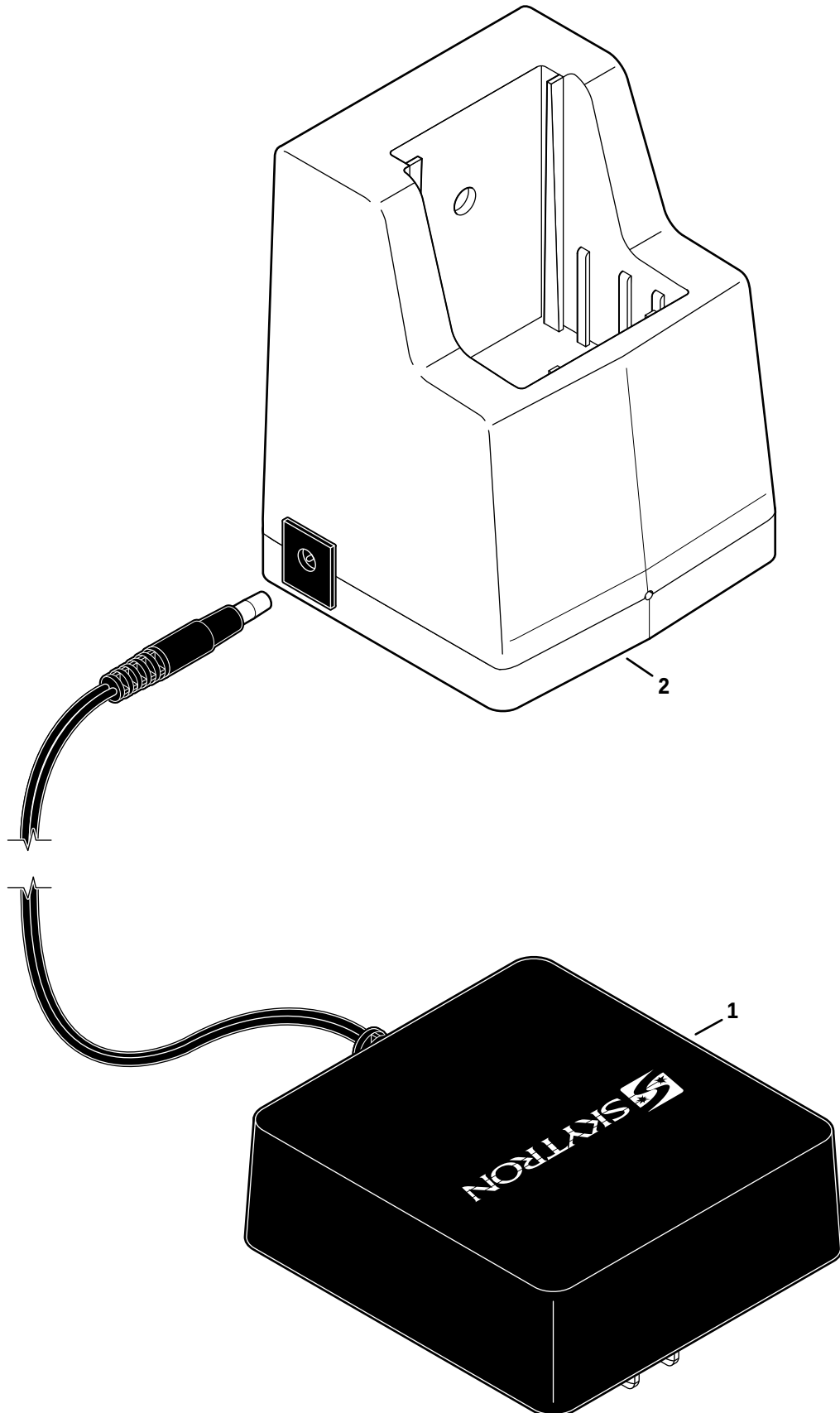
3-3. HA60AR-WC POSITIONING WAND



3-3. HA60AR-WC POSITIONING WAND

Item	Part No.	Description	Qty.
	B5-012-01	PROBE, rechargeable	A/R
	B5-012-04	PROBE, non-rechargeable	A/R
1	B5-012-05	• MAIN CASE (set)	1
2	B5-012-06	• SCREW, main case retaining	2
3	B5-012-07	• COVER, battery	1
4	B5-012-08	• SCREW	2
5	B5-012-01-1	• BATTERY, AA, rechargeable	2
		• BATTERY, AA	2
6	B5-012-09	• RETAINER, battery	1
7	B5-012-10	• CONNECTOR	1
8	B5-012-11	• CIRCUIT BOARD ASSEMBLY	1
9	B5-012-12	• WASHER	2
10	B5-012-13	• SCREW	2
11	B5-012-14	• RECEPTACLE, charger	A/R
12	B5-012-15	• PLUG	A/R
13	B5-012-37	• RING	1
14	B5-012-17	• HOLDER, bulb socket	1
15	B5-012-36	• CONNECTOR, bulb	1
16	B5-010-04	• STROBE BULB	1
17	B5-012-18	• COVER, bulb	1
	B5-012-19	LABEL, PN B5-012-01	A/R
	B5-012-20	LABEL, PN B5-012-04	A/R
	B5-012-21	LABEL, rechargeable battery	A/R

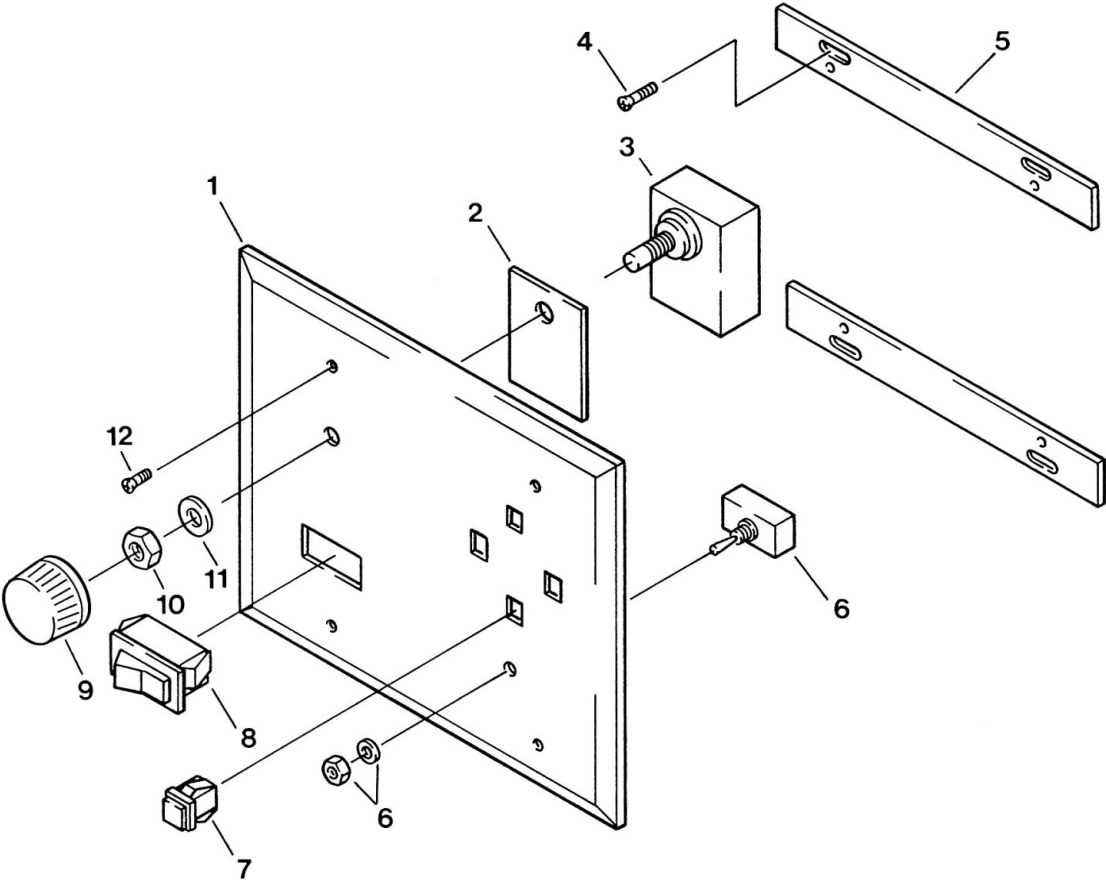
3-4. HA60AR-WC CHARGING UNIT ASSEMBLY



3-4. HA60AR-WC CHARGING UNIT ASSEMBLY

Item	Part No.	Description	Qty.
	B5-012-00	CHARGING UNIT ASSEMBLY	1
1	B5-012-00-1	• POWER SUPPLY	1
2	B5-012-00-2	• CHARGING BASE	1

3-5. WALL POSITIONING CONTROL



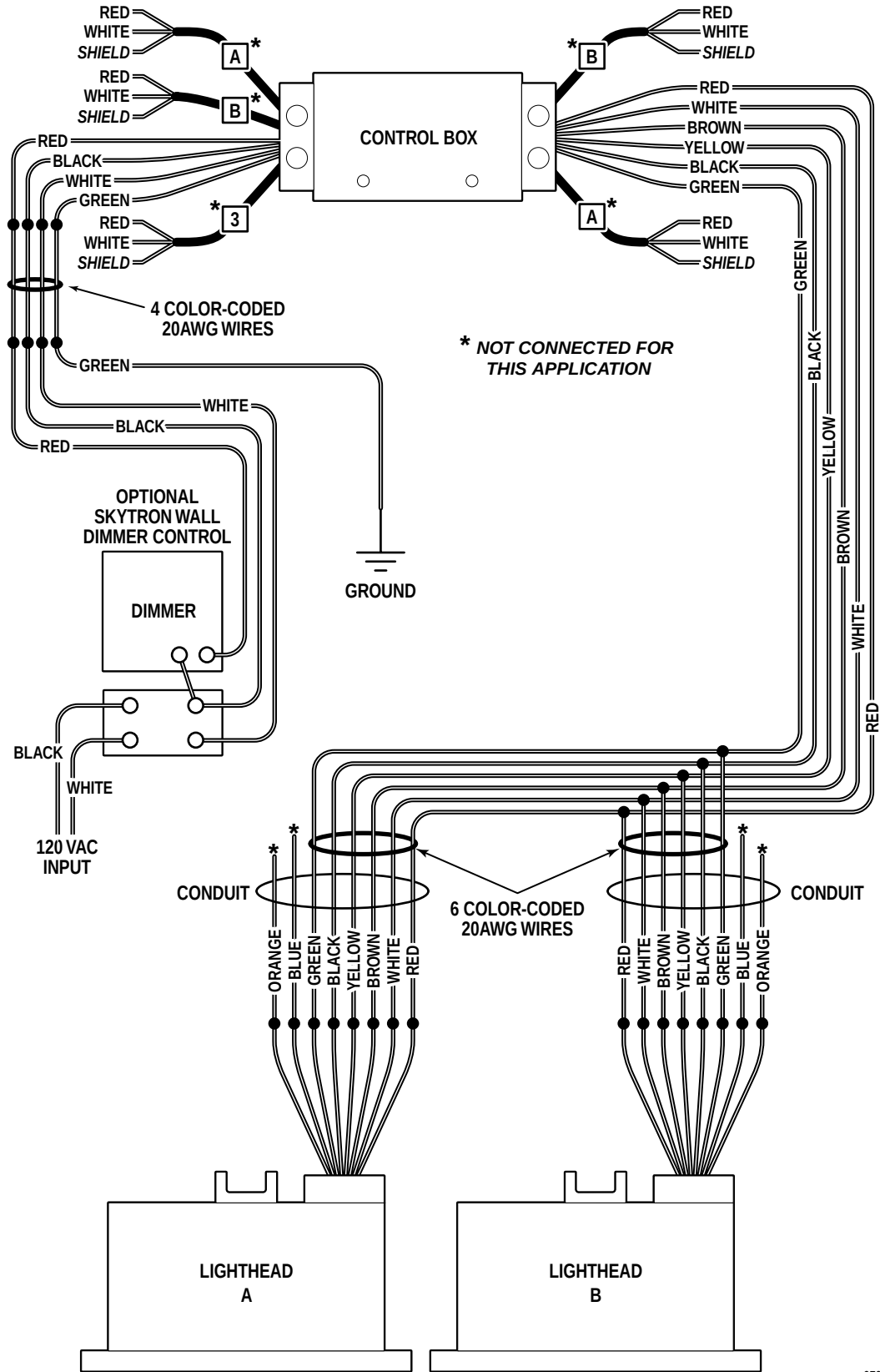
3-5. WALL POSITIONING CONTROL

Item	Part No.	Description	Qty.
	B5-011-84	WALL CONTROL ASSY.	1
1	B9-210-90	PANEL	1
2	B9-210-58	INSULATOR, dimmer control	1
3	B9-210-74	CONTROL, dimmer	1
4	B9-010-24	SCREW, switch mounting, #6-32 x 1/2"	4
5	B9-210-91	BRACKET, mounting	2
6	B5-011-88	SWITCH, selecting	1
7	B5-010-06-5	SWITCH, positioning	4
8	B9-210-16	SWITCH, main	1
9	B9-210-20	KNOB, intensity control	1
10	B9-210-71	NUT	1
11	B9-210-70	WASHER	1
12	B9-010-23	SCREW, face plate (metric thread) 3.5mm x 0.6 thread	4
	B9-210-92	SCREW, face plate (3.0mm Dia. x 0.5 thread)	1

A dedicated circuit with a 20A Circuit Breaker is required for proper operation.



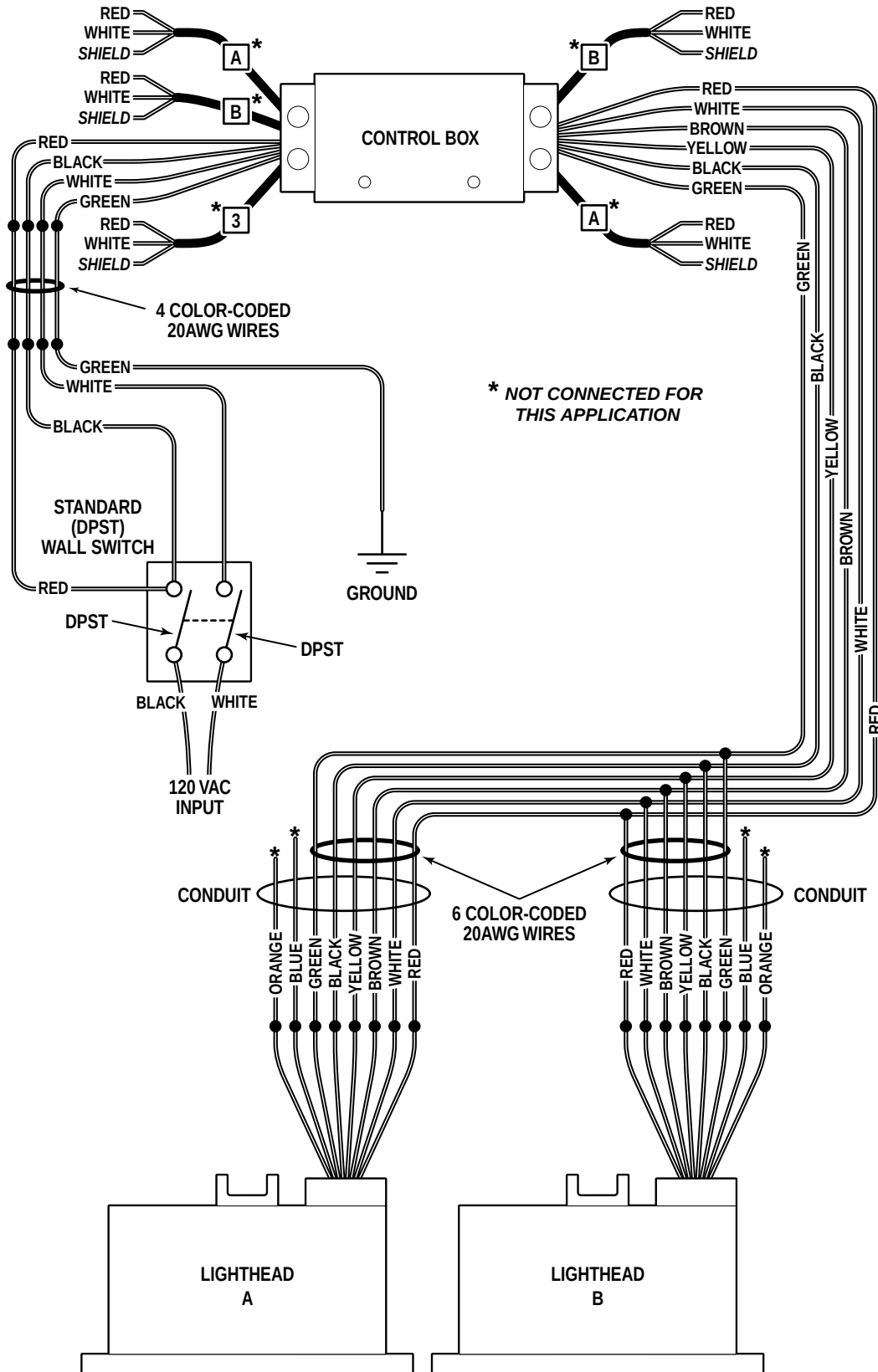
HA60AR-WC OPTIONAL SKYTRON DIMMER CONTROL FIXTURE WIRING



0703.02mg

A dedicated circuit with a 20A Circuit Breaker is required for proper operation.

HA60AR-WC STANDARD (DPST) WALL SWITCH FIXTURE WIRING



A dedicated circuit with a 20A Circuit Breaker is required for proper operation.



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